

CLAIMS

What is claimed is:

1. A retroviral vector carrying a DNA sequence encoding SDI-1, a functional analogue, or a fragment thereof, or an antisense SDI-1 DNA sequence.
- 5 2. A retroviral vector according to Claim 1 carrying a DNA sequence encoding SDI-1.
3. A retroviral vector according to Claim 1 wherein the DNA sequence codes for amino acids 1 to 71 of SDI-1.
4. A retroviral vector according to Claim 1 wherein the DNA sequence codes for
10 amino acids 42 to 58 of SDI-1.
5. A retroviral vector according to Claim 1 carrying a DNA sequence which is antisense to the SDI-1 gene.
6. A retroviral vector according to Claim 1 wherein the antisense SDI-1 DNA
15 sequence is 10 to 30, preferably 15 to 24 nucleotides long and prepared according to the nucleotide sequence of the SDI-1 gene.
7. A retroviral vector according to Claim 6 wherein the antisense SDI-1 DNA sequence is antisense to nucleotides 75 to 93 of the DNA sequence encoding SDI-1.

8. A retroviral vector according to Claim 1, wherein the vector comprises a 5' LTR region of the structure U3-R-U5; one or more sequences selected from coding and noncoding sequences; and a 3' LTR region comprising a completely or partially deleted U3 region wherein said deleted U3 region is replaced by a polylinker sequence containing a regulatory element or a promoter, followed by the U5 and R region, characterized in that at least one of the coding sequences is a DNA sequence encoding SDI-1, a functional analogue thereof, or a fragment thereof, or an antisense SDI-1 DNA sequence which is under transcriptional control of said regulatory element or promoter.
9. A retroviral vector according to Claim 1 wherein the DNA sequence encoding SDI-1, a functional analogue, or a fragment thereof, or the antisense SDI-1 DNA sequence is under transcriptional control of a target cell specific regulatory element or promoter or an X-ray inducible promoter.
10. A retroviral vector according to Claim 9 wherein the target cell specific regulatory element is the selected from the WAP and MMTV regulatory elements.
11. A retroviral vector according to Claim 10 which is pLXS-SDI1.
12. A retroviral vector according to Claim 10 which is pLX125.IDS.
13. A packaging cell line harbouring:
- a retroviral vector according to Claim 1; and
 - at least one DNA construct coding for the proteins required for said retroviral vector to be packaged.

14. A packaging cell line according to Claim 13 which is of human origin.
15. Encapsulated cells comprising a core containing packaging cells according to Claim 13 and a porous capsule wall surrounding said core, said porous capsule wall being permeable to the retroviral particles produced by said packaging cells.
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16. Encapsulated cells according to Claim 15 wherein said porous capsule wall consists of a polyelectrolyte complex formed from counter charged polyelectrolytes.
17. A recombinant retroviral particle produced by culturing a packaging cell line according to Claim 13 harbouring a retroviral vector carrying a DNA sequence encoding SDI-1, a functional analogue, or a fragment thereof, under suitable conditions optionally followed by isolation of the recombinant retroviral particle produced.
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18. A recombinant retroviral particle produced by culturing a packaging cell line according to Claim 13 harbouring a retroviral vector carrying an antisense SDI-1 DNA sequence under suitable conditions optionally followed by isolation of the recombinant retroviral particle produced.
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19. A pharmaceutical composition comprising a recombinant retroviral particle according to Claim 17 and a pharmaceutically acceptable carrier or diluent.
20. A pharmaceutical composition comprising a packaging cell line according to Claim 13 and a pharmaceutically acceptable carrier or diluent.
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21. The use of a retroviral particle according to Claim 17 for the preparation of a medicament for the treatment of disorders or diseases responsive to the anti-proliferative activity of SDI-1.
22. The use according to Claim 21 for the preparation of a medicament for the treatment of a cancer, or restenosis.
23. The use according to Claim 22 for the preparation of a medicament for the treatment of breast cancer.
24. The use of a retroviral particle according to Claim 18 for the preparation of a medicament for the treatment of a disorder or disease responsive to the proliferative activity of antisense SDI-1 DNA sequences.
25. The use according to Claim 24 for the preparation of a medicament for the treatment of cancer.
26. A method for introducing DNA sequences encoding SDI-1, a functional analogue, or a fragment thereof, or an antisense SDI-1 DNA sequence into human cells in vitro or in vivo comprising infecting a target cell population with a retroviral particle according to Claim 17.
27. A method for the treatment of a disorder or disease responsive to the antiproliferative activity of SDI-1 comprising administering to a living animal body, including a human, in need thereof a therapeutically effective amount of a retroviral particle according to Claim 17.

28. A method according to Claim 27 wherein the disorder or disease is a cancer, or restenosis.
29. A method for the treatment of a disorder or disease responsive to the proliferative activity of antisense SDI-1 DNA sequences comprising
5 administering to a living animal body, including a human, in need thereof a therapeutically effective amount of a retroviral particle according to Claim 18.
30. A method according to Claim 29 wherein the disorder or disease is cancer, and the administration of the retroviral particle is combined with irradiation.
31. A method according to Claim 28 wherein the recombinant retroviral particle is administered as an injection, or by implantation of a packaging cell line
10 harbouring:
a) a retroviral vector carrying a DNA sequence encoding SDI-1, a functional analogue, a fragment thereof or an antisense SDI-1 DNA sequence; and
15 b) at least one DNA construct coding for the proteins required for said retroviral vector to be packaged
into the living animal body, including a human, nearby or at the site of the tumor.
32. A method according to Claim 28 wherein the recombinant retroviral particle is administered as an injection, or by implantation of an encapsulated packaging
20 cell line comprising encapsulated cells having a core containing packaging cells harbouring:

- a) a retroviral vector carrying a DNA sequence encoding SDI-1, a functional analogue, a fragment thereof or an antisense SDI-1 DNA sequence; and
- b) at least one DNA construct coding for the proteins required for said retroviral vector to be packaged

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and a porous capsule wall surrounding said core, said porous capsule wall being permeable to the retroviral particles produced by the packaging cells, into the living animal body, including a human, nearby or at the site of the tumor.

FIG 1

FIG 2